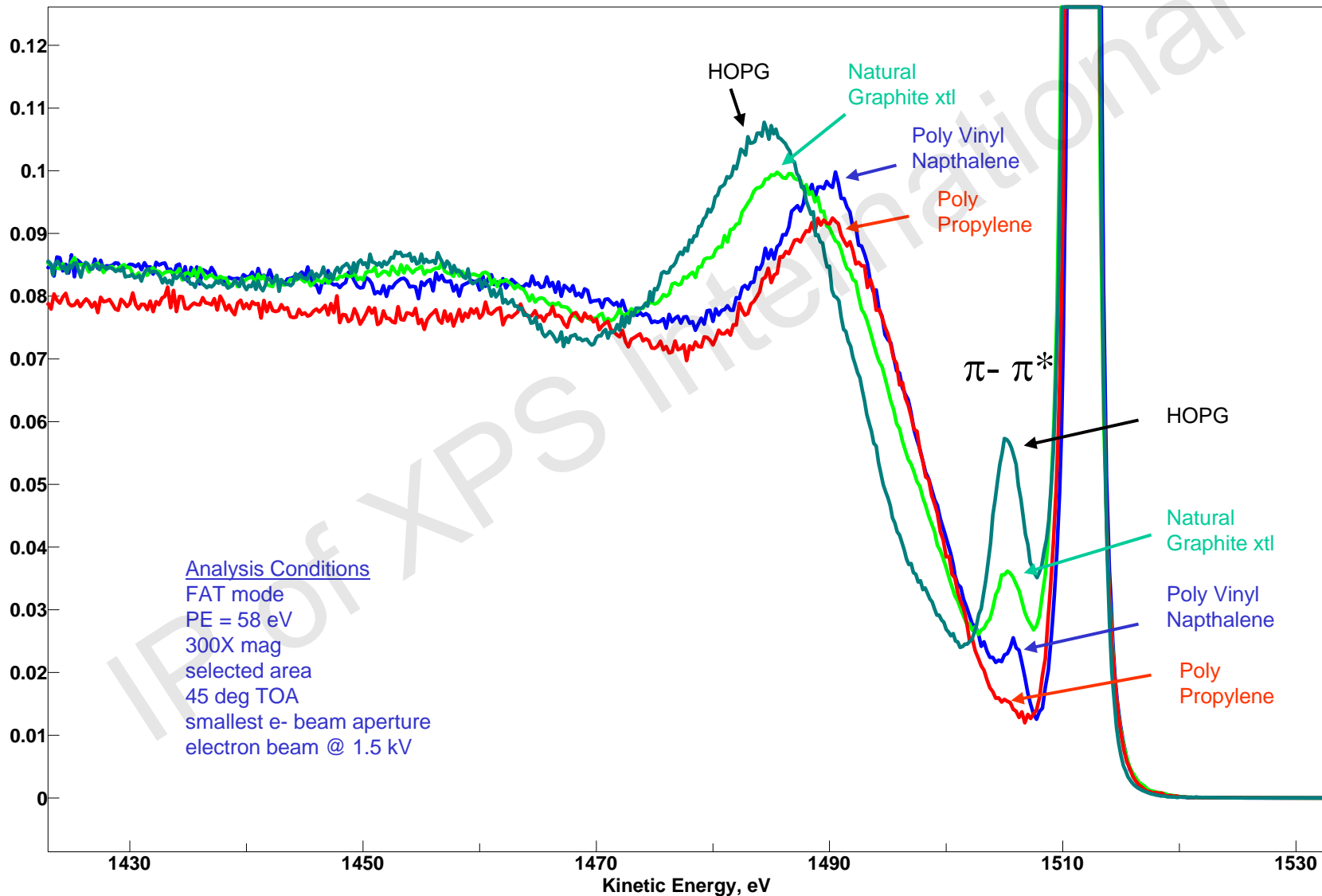


REELS on Pure Hydrocarbons – not cleaned or ion etched

HOPG, Natural Graphite, Poly-Vinyl Naphthalene and Poly-Propylene

Arbitrary Units



Reflected Electron Energy Loss Spectroscopy (REELS) on Hydrocarbons

by Vince Crist, XPS International LLC

- REELS can be done in a very productive manner on instruments equipped with an electron gun used for AES and a Hemi-Spherical Analyzer (HSA). The source can be either a LaB₆ or FE gun. The key to getting the best results is the use of the HSA set to a low pass energy value.
- To do REELS, the energy of the electron beam must be turned down to the upper limit of the HSA. I prefer to use a beam energy of 1.5 kV because it should produce electrons that are somewhat similar in behavior to those emitted by an Al X-ray source.
- The system used here was a PHI 5800 XPS instrument equipped with a LaB₆ Auger gun.
- Note: Any material, insulator, semi-conductor, glass, ceramic, steel etc. can be analyzed by REELS. There are no readily noticeable charging effects! There are various useful effects produced by changing the tilt angle or by lowering the beam voltage down to 500-1000 eV which reveals the surface sensitivity of REELS.